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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,146	10/19/2001	Lawrence H. Domash	A00770/70043 GSE	8528

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EXAMINER
YAM, STEPHEN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/000,146	DOMASH ET AL.	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-10 and 14-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *8-10, 14-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This action is in response to Amendments and remarks filed on June 16, 2003. Claims 8-10 and 14-27 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 27 is rejected under 35 U.S.C. 102(b) as being anticipated by Gloge US Patent No. 3,739,174.

Gloge teaches (see Fig. 1) a method comprising receiving an optical beam (onto (28)), interacting the received optical beam with an optical steering element (28) to generate a steered optical beam, passing the steered optical beam through semitransparent sensor regions (see Fig. 4) of a sensor assembly (21) and on towards a target element (30), said sensor regions defining a target area (center of (423)) (see Fig. 4 and Col. 3, lines 35-37), and based on a signal derived from the sensor assembly (see Col. 2, lines 23-28), using the optical steering element to maintain the steered optical beam at a desired position relative to the target area (see Col. 2, lines 45-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 14-18, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gloge in view of Jackson et al. US Patent No. 5,790,255.

Regarding Claims 14, 16-18, 24, and 26, Gloge teaches (see Fig. 1) an optical device for aligning an optical beam from a source, comprising a beam steering element (28) which during operation receives the optical beam and produces a steered optical beam (15), a sensor assembly (21) with a target region (center of (423)) (see Fig. 4 and Col. 3, lines 35-37) in which the steered optical beam passes through, having detector regions (see Fig. 4) that are at least semitransparent to the steered optical beam, also having a plurality of electrodes (ends of (425-428) connected to (423)), arrayed around the target region, wherein during use the steered optical beam passes through the target region and on a target element (30) and the sensor assembly generates signals (see Col. 2, lines 23-28) at the plurality of electrodes that indicate a position of the steered optical beam relative to the target region and that are used to control the beam steering element (see Col. 2, lines 45-50) so as to align the steered beam relative to the target region. Regarding Claims 16 and 26, Gloge teaches the sensor assembly including a plurality of individual and separate sensor portions (quadrants of (21)) (see Col. 2, lines 34-35 and Col. 4, lines 16-21) arrayed around the target region and each electrically coupled to a different one of said plurality of electrodes (see Col. 4, lines 16-21), said plurality of sensor portions being semitransparent to the steered optical beam (see Col. 3, lines 26-29). Regarding Claim 17, Gloge teaches (see Fig. 4) the plurality of sensor regions are different portions of a semitransparent detector film (423) that completely covers the target region. Regarding Claim 18, Gloge teaches (see Fig. 4) the

plurality of electrodes arrayed around the target region in a rectangular pattern (since there are 4 electrodes, each at right angles with the adjacent electrode). Regarding Claim 24, Gloge teaches (see Fig. 1) a control system (25, 26) that controls an orientation of the beam steering element and a feedback circuit (23) which during use receives the signals from the plurality of electrodes and causes the control system to appropriately orient the beam steering element. Gloge does not teach a substrate that is transparent to the optical beam and the target region on the substrate with the sensor assembly on the substrate. Jackson et al. teach (see Fig. 13 and 14) a transparent position-sensitive detector (170) with a substrate (172) that is transparent (see Col. 10, lines 34-35) to an optical beam (140) (see Fig. 10), a sensor assembly (185-188) having detector regions that are at least semitransparent to the optical beam (see Col. 10, lines 31-34), and a plurality of electrodes (176, 177) arrayed around a target region (center of (170)), wherein during use the optical beam passes through the target region and on towards a target element and the sensor assembly generates signals (see Col. 10, lines 44-51) at the plurality of electrodes that indicate a position of the optical beam relative to the target region (see Col. 10, lines 44-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a transparent substrate as taught by Jackson et al. in the device of Gloge, to provide structural support for the semitransparent detectors for greater stability and durability.

Regarding Claim 15, Gloge in view of Jackson et al. teach the device in Claim 14, according to the appropriate paragraph above. Gloge does not teach the optical beam as a laser light beam and the steered optical beam as a steered laser light beam. Jackson et al. teach the optical beams as laser light beams (see Col. 7, lines 50-54). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use laser light beams as taught

by Jackson et al. in the device of Gloge in view of Jackson et al., to provide confined light measurement with minimal light beam diffusion to maximize light output intensity.

5. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gloge in view of Jackson et al., further in view of Stirland US Patent No. 3,723,013.

Gloge in view of Jackson et al. teach the device in Claim 14, according to the appropriate paragraph above. Gloge does not teach a second sensor assembly being on the other side of the substrate having second detector regions that are at least semitransparent to the steered optical beam and a plurality of second electrodes arrayed around the target region, the second sensor assembly generating signals at the plurality of second electrodes wherein with the signals from the first electrodes, indicate both the position and direction of the optical beam to the target region. Stirland teaches (see Fig. 1) an optical device for aligning an optical beam (32) from a source (28) with a first sensor assembly (34) with first detector regions (40) (see Fig. 2) and a plurality of electrodes (42, 44) arrayed around a target region (48), wherein during use the optical beam passes through the target region and on a target element (38), and the first sensor assembly generates signals, at the plurality of electrodes that indicate a position of the steered optical beam relative to the target region (see Col. 4, lines 24-44) and that are used to control the beam steering element (see Col. 5, lines 5-18) so as to align the steered beam relative to the target region, and a second sensor assembly (36) with second detector regions (40) (see Fig. 2) and a plurality of electrodes (42, 44) arrayed around a target region (48), wherein signals from the first and second electrodes indicate both the position and direction of the optical beam to the target region (see Col. 4, lines 61-66). It would have been obvious to one of ordinary skill in the

art at the time the invention was made to use a second sensor assembly as taught by Stirland on the second side of the substrate in the device of Gloge in view of Jackson et al., to create a compact alignment measuring device that measures both positional and directional misalignments by using multiple sensors along the optical path in order to fully align the optical beam through a waveguide.

6. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gloge in view of LaBudde US Patent No. 4,696,062.

Gloge teach the method in Claim 27, according to the appropriate paragraph above. Gloge does not teach combining an information signal with a pilot signal to form the optical beam or emitting the pilot signal at a different frequency from the information signal to form the optical beam. LaBudde teaches (see Fig. 1) a method of controlling an optical switch comprising receiving an optical beam (through (6), (8)), interacting the received optical beam with an optical steering element (6, 8) to generate a steered optical beam, passing the steered optical beam through a sensor assembly (14, 16) towards a target element (4), and using the optical steering element to maintain the steered optical beam at a desired position, with combining an information signal (36) (see Fig. 2) with a pilot signal (34) to form the optical beam and emitting the pilot signal at a different frequency (see Col. 5, lines 51-58) than the information signal to distinguish it from the information signal. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine an information signal with a pilot signal to form the optical beam and use different frequencies between the two signals in the optical beam

as taught by LaBudde in the method of Gloge, to provide simultaneous alignment and data transmission without degrading the data transmission signal.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gloge in view of LaBudde, further in view of Goldstein et al. US Patent no. 6,243,507.

Gloge in view of LaBudde teach the method as taught in Claim 8, according to the appropriate paragraph above. Gloge does not teach modulating the pilot signal to distinguish it from the information signal. Goldstein et al. teach (see Fig. 1) a method for control of an optical switch comprising steering (20) an optical beam onto a target (55) within the switch, measuring a deviation of the optical beam by using a pilot signal (see Col. 6, lines 11-15) combined with the information signal, where the pilot signal is modulated (see Col. 6, lines 11-13- "*variation* in the *intensity* of a pilot tone"). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modulate the intensity of the pilot signal to distinguish it from the information signal as taught by Goldstein et al. in the method of Gloge in view of LaBudde, to utilize a single wavelength for optical transmission to reduce errors from wavelength-specific loss.

8. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gloge in view of Jackson et al., further in view of LaBudde US Patent No. 4,696,062.

Gloge in view of Jackson et al. teach the device in Claim 17, according to the appropriate paragraph above. Gloge does not teach the optical device comprising a source wherein the optical beam from the source includes a pilot portion and an information-carrying portion

wherein the pilot portion is carried on a first wavelength and the information-carrying portion is carried on a second wavelength different from said first wavelength and the detector regions are more sensitive to the first wavelength than the second wavelength and more transparent to the second wavelength than the first wavelength. LaBudde teaches (see Fig. 1) an optical device for aligning an optical beam (through (6), (8)) from a source (2, 28) (see Fig. 1 and 2) comprising a beam steering element (6, 8) which during operation receives the optical beam and produces a steered optical beam, a sensor assembly (30, 32, 46, 48) having detector regions which generate signals that indicate a position of the steered optical beam (see Col. 7, lines 7-9) and control the beam steering element so as to align the steered beam (see Col. 7, lines 9-13), wherein the optical beam includes a pilot portion (34) and an information carrying portion (36), the pilot portion is carried on a first wavelength (see Col. 5, lines 51-54) and the information-carrying portion on a second wavelength different from the first wavelength, and wherein the sensor assembly is more sensitive to the first wavelength than the second wavelength (see Col. 5, lines 45-48 and 54-58) and is more transparent at the second wavelength than at the first wavelength. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the source with pilot and information-carrying portions in different wavelengths and have greater sensitivity to the pilot-portion wavelength and greater transparency to the information-carrying wavelength as taught by LaBudde in the device of Gloge in view of Jackson et al., to provide increased sensitivity for the sensor assembly for alignment while simultaneously providing optical data transmission, thereby increasing optical data bandwidth.

Response to Arguments

9. Applicant's arguments with respect to claims 8-10 and 14-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY

SY

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